

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A device for mixing and distributing a liquid phase and a gas phase inside a vertical reactor upstream of a granular bed or between two successive granular beds, said device comprising:

- a substantially horizontal plate (20) covering the entire cross section of the reactor and supporting a plurality of substantially vertical conduits (40) comprising an upper end (43) communicating with the portion of the reactor located above the plate (20) and a lower end (21) communicating with the portion of the reactor located below the plate (20);
- said conduits comprising lateral orifices (42) at different levels disposed along their vertical wall and allowing the gas phase and the liquid phase to be introduced into the conduits at least partially in a separated manner;
- said device ~~being characterized in that it comprises~~ comprising a substantially vertical inner wall (30) located in the space comprised between the wall of the reactor and the zone occupied by the conduits, and defining with said outer wall an annular zone (28) ~~which receives~~ for receiving at least the liquid phase from outside the reactor and which communicates with the central portion of the plate (20), in particular by means of lower cross sections ~~of~~ for flow (32).

Claim 2 (currently amended): A device according to claim 1, in which the distance separating the lower cross sections ~~of~~ for flow (32) and the lowest lateral orifices (42) of the conduits

(40) is more than 20 mm ~~and is preferably in the range 100 to 300 mm~~, the lower cross sections ~~of~~ for flow (32) being disposed below the lateral orifices (42).

Claim 3 (currently amended): A device according to claim 1 ~~or claim 2~~, comprising a plurality of lower cross sections ~~of~~ for flow entirely or mainly disposed in the lower half of the inner wall (30).

Claim 4 (currently amended): A device according to ~~one of claims 1 to 3~~ claim 1, in which the dimensions of the lower cross sections ~~of~~ for flow (32) ~~are such that the~~ allow the liquid level in the annular zone ~~remains~~ to remain below the overflow level corresponding to the upper portion of the inner wall (30).

Claim 5 (currently amended): A device according to ~~any one of claims 1 to 4~~ claim 1, in which the dimensions of the lower cross sections ~~of~~ for flow ~~are such that~~ to allow the flow rate of the liquid phase through said lower cross sections of flow (32) is in the range of 0.5 to 5 m/s.

Claim 6 (currently amended): A device according to ~~any one of claims 1 to 5~~ claim 1, in which the width of the annular zone (28) is less than 5% of the diameter of the reactor, ~~and preferably less than 2% of the diameter of the reactor.~~

Claim 7 (currently amended): A device according to ~~any one of claims 1 to 6~~ claim 1, in

which the inner wall (30) is higher than the level of the highest lateral orifices (42) and lower than the level of the upper end (43) of the conduits (40).

Claim 8 (currently amended): A device according to ~~any one of claims 1 to 7~~ claim 1, in which the upper portion of the annular zone (28) is closed by a gas-tight top (35) ~~which renders it tight to the gas phase.~~

Claim 9 (currently amended): A chemical reactor comprising a device according to ~~one of claims 1 to 8~~ claim 1, said reactor comprising one or more fixed beds at least one of which is supplied with a downflowing co-current of a gas phase and a liquid phase, the volume ratio between the gas phase and the liquid phase being in the range of 1 to 400, ~~and preferably in the range 1 to 100.~~

Claim 10 (currently amended): A process for the selective hydrogenation of hydrocarbons containing 2 to 7 carbon atoms in at least one reactor according to claim 9 ~~and/or comprising a device according to one of claims 1 to 8.~~

Claim 11 (currently amended): A process for the hydrotreatment of hydrocarbons in at least one reactor according to claim 9 ~~and/or comprising a device according to one of claims 1 to 8.~~

Claim 12 (new): A device according to claim 2, wherein said distance is in the range of 100 to 300 mm.

Claim 13 (new): A device according to claim 6, wherein said width is less than 2% of the diameter of the reactor.

Claim 14 (new): A chemical reactor according to claim 9, wherein the volume ratio is in the range of 1 to 100.